NOVEMBER 2016 WEATHER SUMMARY
FOR THE CENTRAL CALIFORNIA INTERIOR

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A low pressure system brought sprinkles and light rain during the morning of the first day of this month to parts of the San Joaquin Valley. Most locations that received rain barely measured or just received a trace. Temperatures were generally mild or below average for the 1st and into the 2nd. Patchy fog developed in the San Joaquin Valley during the morning hours on each of these days; the densest fog, or visibility as low as 300 to 500 feet, developed on the morning of the 2nd near Merced where over an inch of rain had fallen during the last few days of the previous month.

High pressure began to build on the 3rd and into the next several days. Dry conditions prevailed with patchy morning fog continuing in parts of the San Joaquin Valley. Temperatures rose back to above average during this period. By the 5th, the warmest locations reached as high as the lower 80s, including in the San Joaquin Valley and Kern County desert areas. High temperatures continued well above average for the next several days due to persistent high pressure; high temperatures in parts of the San Joaquin Valley peaked around the mid-80s to near 90 degrees on the 11th, or Veteran's Day. Record high temperatures were reached on Veteran's Day in much of the region, including the San Joaquin Valley.

A gradual cooldown occurred on the 12th through the 15th; however, temperatures remained at least several degrees above average. The high pressure finally gave way to a cold front on the 16th, and temperatures fell to below average for the first time this month. Gusty winds funneled through the passes and canyons in eastern Kern County, as well as over the mountain peaks of the southern Sierra Nevada. Gusts were as high as 69 mph during the afternoon of the 16th on some of the peaks in the Sierra Nevada north of Tehachapi; Mojave also recorded a gust to 59 mph. The cooler air remained over the area for the next couple of days; low temperatures were the coldest this year so far since February. Low temperatures fell to the 30s in the San Joaquin Valley on the mornings of the 17th-18th.

High pressure briefly returned to the area, so high temperatures rose back to a few degrees above average during the 18th-19th. On the afternoon of the 20th, temperatures were still relatively warm, but rainfall began to impact much of the region by the evening hours. Some locales, mainly in western and central portions of the San Joaquin Valley received around half of an inch to just above an inch of rain on the evening of the 20th into the morning of the 21st. Other locales

received a quarter inch or less, such as in Bakersfield and the south end of the San Joaquin Valley. This was an atypical storm, as much of the Sierra foothills and the east side of the San Joaquin Valley received little or no rainfall due to the orientation and trajectory of the storm system. There was, however, a decent northwesterly flow that brought moisture to the north and west facing slopes of the Kern County mountains on the morning of the 21st, including in the Tehachapi Mountains. So, some locales in these areas received around a quarter to just over half of an inch.

Foggy conditions prevailed on the morning of the 22nd in the San Joaquin Valley; widespread fog was observed with visibility at or below a quarter mile. There were also quite a few locations that dropped to around 300-500 feet visibility, such as at Hanford, Fresno, and Merced. By the following evening and into the morning of the 23rd, a low pressure system brought mainly light precipitation to the region. Afterward, a high pressure system brought a drier airmass with warmer daytime highs but cooler than average low temperatures for the next couple of days, or the first half of the Thanksgiving holiday weekend.

On the 26th and into the 27th, a strong low pressure system moved over central California. The low that moved through the area during the afternoon into the evening of the 26th brought widespread rain showers to the San Joaquin Valley and scattered thunderstorms in the Kern County desert areas. In addition, snow levels lowered sufficiently for snow on the Grapevine and Tehachapi Passes in Kern County, as well as the Sierra Nevada foothills down to around 3,000 feet elevation. Rain and mountain snow continued overnight into the 27th as another low pressure system moved over the area. This system brought several inches to around a foot and a half of snow in the Sierra Nevada, including elevations above 5,000 feet. Also, around several inches to a foot of snow fell in the Kern County mountain areas, including the Tehachapi Mountains above 5,000 feet. Rainfall ranged from around a quarter inch to over two inches in the elevations below the snow line. The San Joaquin Valley generally received around two tenths of an inch to around one inch. Fresno received just over three quarters of an inch (0.77 inch during the 26th-27th) from this system, and Bakersfield reported just under one quarter inch (0.23 inch during the 26th-27th). Many locations in the San Joaquin Valley received around a quarter to half of an inch. Some locations in the Kern County mountain and desert areas observed strong wind gusts; especially over exposed ridgetops. A remote observation site in the mountains to the northeast of Tehachapi (Bird Springs Pass RAWS, or remote automated weather station) reported gusts to 84 mph at an elevation around 6,300 feet.

On the night of the 27th into the 28th, yet another low pressure system moved over central California. Mainly light precipitation was observed, although low cloud cover persisted for most of the day on the 28th. Moist north to northwest flow occurred throughout most of the day on the 28th and into the following evening in Kern County. For instance, Tehachapi reported dense fog and light rain with a consistent northwest wind around 15-25 mph for much of the day. Also, the

east side of Bakersfield received some light rain due to the cloud cover during the evening of the 28th. The low clouds remained over much of the San Joaquin Valley into the 29th, as the cool, moist north to northwest flow continued. By the last day of the month, high pressure gradually built over the region, and patchy dense fog once again developed in the San Joaquin Valley.

The month ended with below average temperatures, although the month was overall well above average (Fig 1). Precipitation was variable throughout the central California interior, as below average precipitation generally prevailed with some pockets of above average amounts such as in parts of the San Joaquin Valley and the mountain areas in Kern County (Fig 2).

Table 1 - November 2016 Summary Statistics for ASOS locations

Location	Monthly Avg Temp	Departure From Normal	Total Monthly Precipitation	Departure From Normal
Bakersfield	59.0	+3.9	0.38	-0.26
Fresno	57.6	+3.3	1.38	+0.31
Hanford	56.0	+4.0	0.36	-0.64
Madera	56.4	+3.7	1.58	+0.43
Merced	55.5	+3.1	0.89	-0.29

Fig 1 - Departure from average temperature for November 2016:

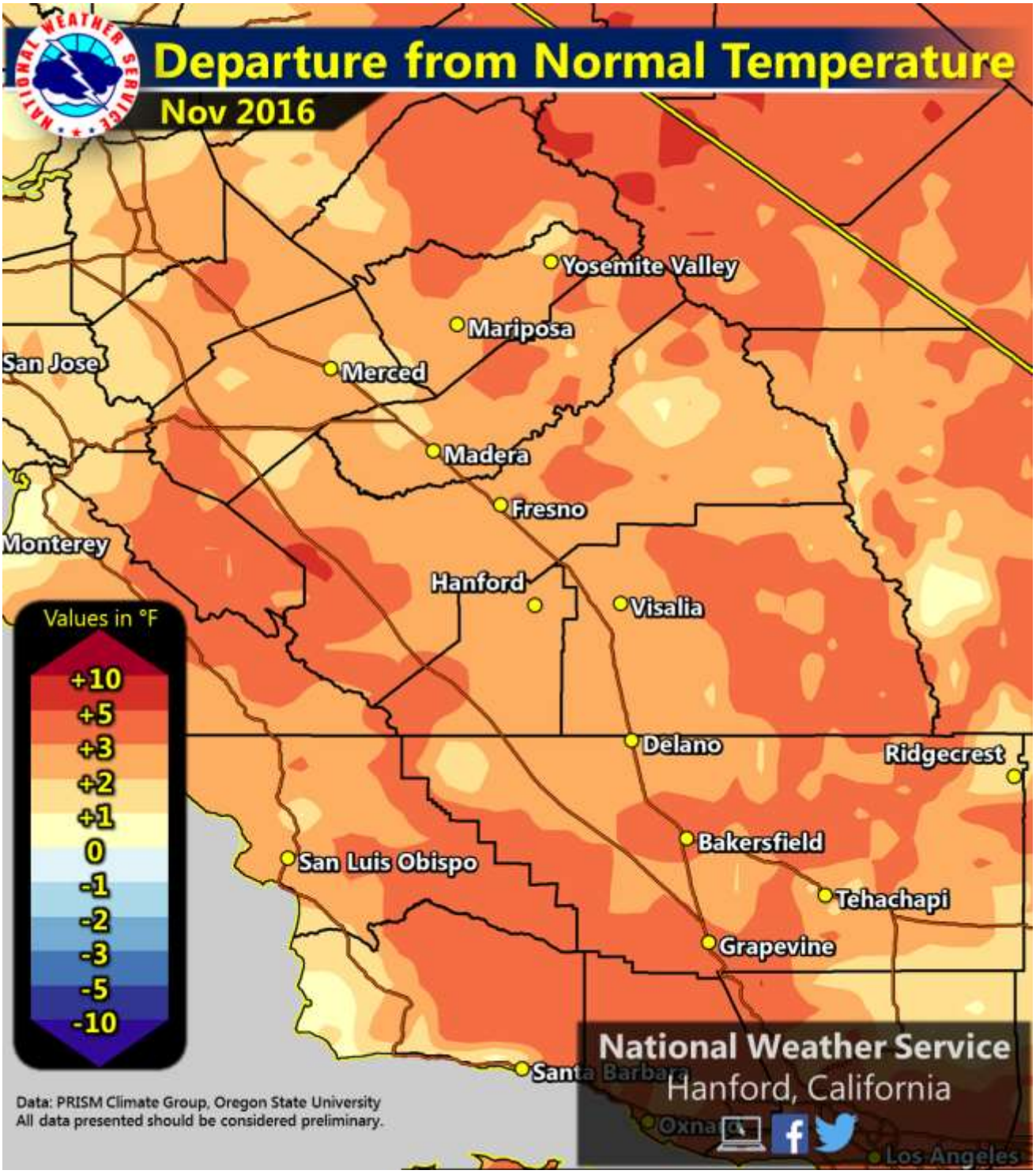

Fig 2 - Percent of normal precipitation for November 2016: